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ABSTRACT

A descriptive evaluation is presented that considers several distance-education courses in Nevada, all of which use compressed video. The performances and attitudes of distance-education students are compared in general terms with those of students in regular classes. Programs evaluated in this preliminary investigation include nursing courses from the University of Nevada, Las Vegas, which is linked to Northern Nevada Community College and three distance-education courses. Access to library reference materials is a problem recognized at these sites and at the University of Kentucky, where evaluations of distance education have been more extensive. Other issues explored include classroom interaction with and access to the instructor and the physical arrangements of classrooms and technology. Distance education in Nevada is in its infancy in terms of the developing technologies, effective teaching techniques, and fulfilling student needs, but it offers great promise for reaching rural areas and educating those who cannot leave their home communities. (SLD)

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First Steps: The Early Stage of Distance Education in Institutional Comparisons

By
Sari Aizley

Nevada has more than its share of gaunt square miles dominated by jackrabbits and tortoises, creosote and cactus, and dotted with pockets of human population.

In terms of Nevada's social and economic wellbeing, the education of these wide-spread and isolated human populations has long been a challenge to those concerned with higher education in Nevada. Thanks to technology that has matured during the past decade or two, Distance Education has now earned a place in the college curriculum. That is, a course taught at one location in Nevada -- usually at one of the six campuses of the University and Community College System of Nevada (UCCSN) -- is transmitted to another campus or to communities in outlying areas that have limited or no facilities for education beyond the level of high school. Distance Education at its best provides for two-way interactive audio and video between the primary site (where the instructor is) and the remote site (where the students are).

Purpose of this study

Because Distance Education is a relatively new undertaking for Nevada, there is little information available about its procedures and effectiveness in this state. A search for evalua-

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tions has not been fruitful. Nor are the few known publications on Distance Education, in general, available in any Nevada library.[1] It is assumed, therefore, that even a preliminary study such as this will be helpful to the higher education community, both as a baseline for subsequent (and more thorough) research and as a source of information for those planning future Distance Education courses.

Following is a descriptive evaluation that (1) focuses on instructor evaluations of nursing courses presented at UNLV and linked to the Northern Nevada Community College in Elko; (2) contains observations on three other Distance Education courses in Nevada, based on interviews with instructors and/or administrators; and (3) includes commentary by educators from the University of Kentucky, where a Distance Education program has been offered since the mid-1970s. (The latter commentaries address an Ed.D. program in Educational Administration and Higher Education, and a lower division nursing course. The Distance Education programs included in this report are those that use the same technology (compressed video); excluded are those that are *not* live, interactive classes -- such as the Arizona-based Master of Library Science degree program, which is recorded from satellite and played back at a more convenient time for the students.

An exploration

The questions asked are: Do students at the remote site, on average, learn more or less than students at the primary site, and do those at the remote site have sufficient between-class contact with the instructor and adequate access to library

materials? Further, do remote-site participants have any sense of isolation or "step-child status," how is student-to-instructor and student-to-student interaction affected by the particular technology used for delivery of the coursework, and how comfortable are the instructors with this system of delivery?

The study

The UCCSN Board of Regents has adopted guidelines for educational telecommunications.[2] The policy was written "to assure academic quality." Item 1 states that the "quality of instructional telecommunications courses should be equal to or exceed that of on-campus courses." Ronald W. Smith, dean of the UNLV graduate college, says this: "While the modes of delivering instruction may sometimes differ between on-campus and distance learning courses...the sound academic principles upon which quality higher education is based should not vary..."[3] The current study explores how well Nevada, so early in its experience, is approaching this ideal.

As stated in a University of Kentucky (Kentucky) report that focuses on Ed.D. courses, the assumption is "that the pre-existing on-campus program is of high quality and that by inference the extended-campus program is of similar quality if the program mirrors the one offered on-campus."[4] The Kentucky report states that Distance Education classes offer identical or similar lectures, exams, instructors, and curriculum design as do traditional classes, but points out that there is less individualization for students and that problems exist at remote sites in

gaining access to essential library materials (to be discussed in more detail below). Yet, Kentucky concludes "that the amount of learning was about the same for on- and off-campus students."

According to Pat Alpert, UNLV Department of Nursing instructor who taught Physical Assessment in a Las Vegas/Elko Distance Education course,[5] the students at both sites produced virtually the same quality work. Alpert's class functioned entirely on audio for the two-hour lectures three times a week; video transmission had not been available. (For weekly three-hour laboratories, a qualified laboratory instructor was hired for the Elko class.) Ms. Alpert admits that, at first, the students were as uncomfortable with the audio medium as she was and that many technical problems existed with the equipment. Yet, final evaluation of the class reveals no significant difference in grades based on either lecture material or laboratory skills. Videotapes of the Elko students performing physical examinations on live subjects (part of their "finals") have been judged by the instructor to be equal or superior to the work of students at UNLV, also video-recorded. These videotapes have been submitted to an off-campus objective reviewer who will try to identify which students were at UNLV and which at Elko, based on the skills demonstrated on randomly-selected tapes.

Similar findings are reported by Gay Neuberger, academic credit coordinator at the University of Nevada, Reno.[6] "Grade differences are negligible" she says and, discussing a recent class linking UNR and Gardnerville, "Sometimes students at the remote site are better, on average, even when they are underprepared for the class." Neuberger suggests that remote-site

participants become a cohesive group with a common goal, who come to class prepared and study hard, and who help each other. However, she contrasts that class with an engineering course offered to engineering employees at their workplace: "They had many complaints, about being disadvantaged, and about the shortcomings of the technology." She hypothesizes that these grievances were used as an excuse by those having difficulty with the coursework.

Leslie Cummings, professor of hotel administration at UNLV,[7] taught a class on food service purchasing that was transmitted to the University of Nevada, Reno. (Reno is not a rural community lacking educational facilities, but UNR does not offer this course to people involved in or seeking to join the hospitality industry.) Cummings is reluctant to make a blanket statement about achievement levels of the remote students because "the UNR students were a self-selected group," they all had specific interest in the topic and were motivated to work harder than a more traditional class. She says they understood the kind of class they would be attending, were "adventuresome," and brought good attitudes to their studies.

Thus, there appears to be another asset enjoyed by students taking distance education programs -- community support. For example, Kentucky offers three programs in health sciences to the rural areas of the state. According to William Pfeifle, Associate Dean for Academic Affairs at the Kentucky College of Allied Health Professions,[8] a social network within the rural community serves to enhance the students' learning because the community wants to make the program a success. This attitude is much like the community support experienced in Elko: Alpert

reports that students in her class in Elko, believing they had not acquired sufficient skills in a certain area, sought out a local ophthalmologist who gladly allowed them to look into a human eye.

It appears that there is a collateral benefit derived by students at remote sites: an increase in self-confidence and motivation. Alpert says that the rural students "become more resourceful, more motivated." Similarly, Kentucky students exhibited increased interest in self-directed learning, according to the report, which also points out a potential trade-off between certain "traditional" experiences (on-campus) and the "positive conceptual and scholarly development" of students.

Most sources report that students soon became accustomed to the characteristics and quirks of Distance Education and that, in fact, many plan to enroll in other Distance classes. Alpert reports that students in Elko continue to be highly motivated and will likely take Distance Education classes in the future. It should be noted that residents of Elko who want higher education, like the rural Kentucky students, have only two options: take Distance Education or travel many miles for on-campus classes. However, for many, the second is not a legitimate option because most of these students are likely to have families and are less likely to be able to leave home for an education; moreover, they are more likely to stay in their community to work. Smith describes students who attend classes at remote sites in a similar manner: "...of ten part-time students, have full-time

jobs and families...are self-directed and prefer independent study, and seek immediate and practical application of the course-work to their lives."[9]

Access to library reference material

All the respondents report that the availability of reference material at the remote sites is a legitimate concern, but that they were largely able to overcome the problem by advance planning. Nevada's Board of Regents specifies Guidelines for Distance Learning. Among the provisions are item 3: "The institution will be expected to provide appropriate instructional support to insure quality"; and item 5: Each student [in the program] shall have reasonable access to all academic support services...including...library and other learning resources..." To achieve this end, UNLV's Alpert prepared a list of required reading and either ascertained that the NNCC library carried these publications or she provided them to the library; other reference materials were faxed to the NNCC classroom. Cummings sees access to reference materials as "not a big problem" except that the remote-site students had little access to certain supplementary periodicals.

The University of Kentucky evaluation notes that procedures for students to acquire library materials are too complicated and "that the turnaround time is too long," up to three weeks. In fact, a survey of Kentucky Distance Education students revealed that the most severe criticism was levelled at library services. In contrast to the Kentucky report on the Ed.D. program, Pfeifle

saw this as less of a problem because, in his experience with distance health profession education, library reference materials "can be computer-accessed and delivered within 48 hours."

Neuberger reports few problems with access to libraries, partly because many of UNR's Distance Education classes involve community colleges and other locations within easy driving distance of the university. It is understandable that these students can visit the university for occasional necessary research but that a full semester of commuting to classes might be a substantial burden. However, Neuberger expects access to library materials to become a bigger issue as Distance Education expands in Nevada. "It is important for the professor and the library to work together before the course is offered," she says, in order to ensure that required materials are available for the students.

Yet, with all the problems surrounding access to library reference materials, students feel this matter is offset by the convenience of not having to travel long miles to attend classes.

Classroom interaction/Access to instructor

The UCCSN Regents Handbook offers guidelines to services offered to students at remote sites. Item 4 in the Regents Handbook provides for "timely interaction between the student and the instructor or a member of the instructional team responsible for the course..." This may include orientation sessions, individual or group sessions to discuss the student's progress during the semester, and "access by the student for advice or consultation with the faculty member." Additionally, Item 5 requires that each student shall have access to all academic support

services...including such services as academic advising, counseling...tutoring services, and financial aid." Paul Aizley, UNLV dean of extended education, points out that it is not possible to duplicate all services because of the cost. "We can say that we want to provide all these things at the remote site, but we can provide only those resources that the budget will support," he says. The Kentucky report, too, specified that more advisory assistance for students is needed.

The use of on-site instructors or teaching assistants in remote locations varies. For example, none were provided in Elko for UNLV's Spring 1993 nursing course, and one was hired to cover laboratory training at Elko in the Fall 1992 nursing course. The hotel administration class offered at UNR included a facilitator who had taught the class in the past and was able to address students' questions between class meetings. In Kentucky's allied health classes, faculty were hired to work with students in all the remote classrooms, conducting labs and sometimes augmenting the instruction. (The students receive lectures by compressed video at the community college, do clinical laboratory work at the regional health center, and have noon conferences with both the primary and the remote site participating.) In the Ed.D. program in Kentucky, an average of only 25 percent of the extended classes have on-site teachers. The Kentucky study says that "the greater emphasis on independent learning (self-directed) prepare[s] the extended-campus [student] better than the more teacher-dependent on-campus counterpart for life-long learning and/or scholarship..."

The UNR Handbook for Site Facilitators details the responsibilities these assistants may have, depending on their assignments. In the administrative sphere, facilitators are expected to handle registration, establish classroom conduct, keep attendance records, proctor exams, move homework and other student work between the class and the instructor, and serve as liaison -- among students and between students and instructor. In addition, facilitators may be responsible for referring student questions to the instructor and for certain technical matters, such as establishing the audio and video links at class times and reporting technical quality problems to the appropriate office.

Those who evaluated Ed.D. distance learning in Kentucky report that Distance Education technology "does not accommodate conversation"; that dialog is "less spontaneous"; that the "rhythm" of a class is interrupted when students must raise their hands and await their turn to speak; and that there is a need for better instructor preparation. The Kentucky report says, too, that at the remote site, "students lose out on some of the typical interaction with faculty." One instructor felt that discussion was inhibited and reported that students at the primary site disliked having to "share time" with the remote-site students. (It is interesting to note that it was the Kentucky *instructors*, rather than the students, who most frequently expressed these concerns.) Similarly, Pfeifle observed that remote students in health education classes adapted to the system because it was what they expected to experience, but students at the primary site felt they were "getting a depreciated class" whenever the instructor travelled to and lectured from the remote classroom

site. The on-campus students had not expected to be on the receiving end of the broadcast lectures. Alpert, whose nursing class turned into audio-only because of a problem with the video technology, says that it was difficult not to have open two-way communication -- making students wait for their turn to speak -- and that she missed "seeing the students' questioning looks" when some point was not understood. Cummings feels that a majority of the remote students were inhibited at first by the cameras and microphones, but that most (not all) overcame this. She was concerned by an apparent lack of attention by the students at UNR when she observed them "huddling...talking among themselves," but has concluded (and will try to confirm) that they were having trouble hearing her because of the poor quality of audio and were consulting one another about what they had missed.

Neuberger reports a "strange phenomenon" that emerged in terms of student-instructor relationships at the remote site: "The students came to see the instructor as a 'TV star' because they only saw that instructor on the monitor." She speculates that students thus became reluctant to call the instructor with questions. Instead, the site facilitators -- hired only to handle equipment and class materials -- "became surrogates for the instructor." Neuberger is working to resolve this problem, to have students redirect their questions about content to the instructor and to redirect their administrative questions to her office.

Asked about the instructor's level of attention to students at remote sites, most sources replied that attention was good or excellent, and mostly even-handed. Neuberger says that one in-

structor was "so sensitized to and focused on remote-site students that he was worried about his on-campus teaching evaluations." Alpert expresses the belief that instructors involved in Distance Education must develop skills particular to that medium in order to be effective at the remote site. Pfeifle noted that this is largely a classroom management issue, but that the biggest problem in the allied health classes was in discussion-oriented classes, because the technology "cannot handle it in a...spontaneous way" and the instructors say such a class "is not as a rich a discussion." University of Kentucky Ed.D. faculty call the system "extremely demanding" but say that, ultimately, it is satisfying to work with extended-campus students if the instructor is well-organized and has done sufficient advanced planning. Pfeifle was more specific, placing instructors in one of two categories: (1) those who understood what they would experience when hired for distance learning classes or who are part of the course planning, and (2) those who are assigned to the program and "reluctantly put in their hours in front of the camera." The first group "buys into the concept and makes the adjustment easily," while the second group experiences problems. Pfeifle recalls a problem that emerged at the beginning of a physiology course taught from the medical school: the various specialists who lectured felt the distance learning procedures were "an ordeal," and there was a delay in the instructors acquiring the timing and the skills needed with the equipment. Cummings found she had to conceive her presentation and materials in a more visual way, because she sensed that "laundry lists of information must be dry and boring," and she expects

this learning experience to be applied in the future with her on-campus classes. She enlisted the aid of the UNLV director of audio-visual services, who was enthusiastic in helping her to develop the visual materials.

Neuberger offered her observation on the unique speech patterns of Distance Education instructors she has observed: they tend to slow down, much the way some people talk more loudly to be understood by non-English speakers.

Physical arrangements of classrooms and technology

In most cases, the classrooms at the primary site were set up in a traditional arrangement (rows of seats) or conference-room style, and were judged to be satisfactory. Some complaints were recorded about facilities at remote sites. In the Kentucky report on the Ed.D. distance learning program, there was "general agreement that the small video classroom [at the remote site] is an embarassment." In Elko, Neuberger reports, "student complaints were reasonable," and NNCC supplied new facilities in Elko. Kentucky's allied health classes were originally set up in the traditional classroom manner, which, Pfeifle says, is an inherent problem. He believes the better arrangement is U-shaped or tiered U-shape, even though that would require a "modest investment" for voice-activated (automatic zoom) cameras on *both* sides of the room. Cummings' classes sat around tables, which, she says "was inhibiting because I couldn't be me...animated."

As seen from Pfeifle's comments above, observations are more specific when discussing the cameras and sound equipment at all locations. The Kentucky report on Ed.D. classes includes student

comments indicating that the sound system was inadequate and that more microphones were needed, "at least one per two people." Pfeifle feels that such shared microphones are *not* desirable and that the better system uses battery-operated microphones that can be passed around among the students. He also believes that some problems might be reconciled with better cameras. Kentucky's health profession classes now use one camera at the back of the room, focusing on the instructor, and one in front that can pan, change to wide angle, and zoom in on students who are speaking.

Neuberger's description of technical arrangements at the UNR primary site is commendatory: cameras are set up throughout the room, which was designed specifically for Distance Education, and a trained operator keeps the cameras focused on speakers as much as possible. In contrast, she adds, the conference room used as a primary site at UNLV was not set up for Distance Education and, because there was no camera operator or facilitator, the camera did not move or zoom in on speakers. Some students in Elko observe that it was difficult to follow discussions taking place at the primary site if they could not see clearly who was speaking, and at least one felt "like an outsider looking in" when cameras did not focus on the speakers. Cummings found the technology to be burdensome to some degree, partially because of poor equipment and partially because she could not concentrate on the *content* of her subject while having to turn the cameras, adjust projectors, and fuss with a control box "that worked only now and then."

Cummings says she was advised to train the students how to use the equipment, and several students were willing to help in this manner. However, other students wanted extra credit.

Conclusion

Distance Education in Nevada is in its infancy. There is great potential for reaching rural areas where little or no other higher education is available. It fills the need to educate people who cannot travel to larger campuses and who will, most likely, invest their acquired knowledge and skills in their home communities. Distance Education in this state is in its infancy also in terms of developing satisfactory technology and effective teaching techniques, and fulfilling student needs in services such as advising and interaction with the instructor.

This study makes no attempt to produce an exhaustive evaluation of all phases of Distance Education in Nevada; rather, it assembles a variety of subjective reports from people with first-hand experience and distills the information into general trends. Other researchers would perform a valuable service to higher education planners in Nevada by exploring in some depth the following issues as they relate specifically to Distance Education: teaching techniques for lectures and demonstration (including preparation of visual materials); training instructors and facilitators on use of technology; methods for increasing student access to instructors; systems for rapid delivery of library and other resource materials to remote sites; and, although it was not addressed in this report, state funding of Distance Education and its economic impact on Nevada.

POTENTIAL OF DISTANCE EDUCATION IN COMMUNICATION STUDIES.

The temptation to predict success for Distance Education technology in Communication Education is very strong because, after all, communication in any form is communication. But my limited exposure to the subject (by way of this paper) points to a need for caution in making such a broad prediction. Rather, I would say that, for students at the remote site, Distance Education would work well in *some* areas of Communication Education, and not very well in others. The following analysis concentrates on the remote site class -- and, I must emphasize, is based on slightly-informed conjecture rather than original or scholarly sources.

A 101 course is, essentially, an introduction to a discipline based almost entirely on human interaction and dialogue. To present this material in a setting in which the instructor is a one-way source of information is to create two undesirable situations: (1) Asking the student to accept the passive role of "receiver," which is inconsistent with the goal of teaching communication skills; and (2) Stifling the student's spontaneity in reacting to or questioning statements made by the distant lecturer. The latter condition, perhaps, could be mitigated slightly by the use at the remote site of a facilitator or "assistant teacher" who is knowledgable in the subject and who can be a surrogate for the instructor. However, there is no substitute for "the real thing" when a student needs to interact with a speaker. I would not give priority status to establishing COS-101 as a distance education course, particularly for students whose major will be Communication Studies.

A television production course has the potential to be a successful undertaking for Distance Education -- but *only* in communities with certain "laboratory" facilities. My reasons for projecting even this limited success are the likelihood that the technical lectures make up a significant part of the coursework, and that the actual hands-on experience can be fulfilled anywhere the television facilities are available to students. However, this class would also need a knowledgable assistant teacher at the remote classroom. Addressing each item mentioned above:

(1) The lectures contain a substantial amount of technical matter, which is not generally up for discussion or debate. Questions can be asked of the instructor or the assistant after each lecture segment without loss of "connectedness" between student and instructor. Illustrations can be presented either by camera or by distributing handouts to students at the remote site. Of course, the success of these techniques will depend on a particular factor that was emphasized by most of the people interviewed for this paper: the need for detailed and extensive advanced planning. This planning should cover distribution of handouts as well as refining technical transmission matters.

(2) Arrangements would be made at remote sites (where available) for student hands-on experience with television production equipment -- if not at the facility where classes are held, then, taking advantage of the apparently widespread community support, in a private technical facility. However, students who plan to major in television production would eventually have to move to a campus with more sophisticated facilities.

Classes in news-writing, public relations and advertising seem to be an amalgam of the two courses discussed above, with some of the same problems and some of the same possibilities. An experienced assistant teacher and considerable advanced planning would be needed for the remote site. Because much of the instruction is presented lecture-style or in demonstrations, it would be important to have materials to distribute to the classes to illustrate the techniques and skills that are the subject of each class. These might include sample news stories, case studies of public relations campaigns and sample ads -- and the remote-site handouts would augment the materials being discussed and demonstrated at the primary site. It is to be expected that class assignments would emphasize student-created copy, ads and proposals for campaigns. Those to be evaluated and/or graded can be transmitted to and returned from the primary instructor in a matter of minutes, if necessary. At the same time, the on-site assistant can provide the coaching and consultation students need.

A prediction for the success of these Communication Study classes -- as with many Distance Education classes -- will depend largely on funding (which was not covered in this paper). It seems clear that budgets for successful distant classes would necessarily include salaries of experienced teaching assistants, the costs for additional printed material to supplement the visuals that are seen on the monitor (often unclearly) and, perhaps, rental of technical equipment for the production class.

Bill Noyes, associate vice president at the University of Arizona (in charge of Continuing Education) made some casual remarks about the enormous potential of Distance Education during a recent conversation. He particularly addressed Mind Extension University, which goes into nearly 22 million homes. Of these millions, an average of only 1,500 people register for classes each semester, and 450 of these are in the Master of Library Science program that comes from the University of Arizona. (UNLV participates in this program.) Noyes, who has long been involved with Distance Education of many kinds, says that, "clearly, something is wrong; with such great potential, why isn't Distance Education doing more?"

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FOOTNOTES

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1. A publication that might prove valuable for future studies on Distance Education is *A Review and Synthesis of the Literature: Distance Education and its Relevance to Nonresident Foreign Language Training*," by William J. Bramble, Ph.D., September 1990, Institute for Simulation and Training, University of Central Florida Division of Sponsored Research.

2. Board of Regents Handbook, Title 4, Chapter 14, Section 9

3. Memorandum from Smith to Paul Aizley, UNLV Dean of Continuing Education, Oct. 5, 1993

4. A report to the University of Kentucky Distance Learning Committee, August 19, 1992, by Dr. Edgar L. Sagan, Coordinator of the Office of Extended Campus Graduate Programs

5. Interview

6. Interview

7. Interview

8. Interview. [Prof. Pfeifle dedicated his sabbatical year (1992-93) to researching distance education in Hazard, KY, with particular focus on distance learning for Hazard's Centers for Rural Health. He explains that this allows students in rural areas to acquire an education without disrupting their lives to move to another city for on-campus education; then these students are likely to remain in their communities to work in the health field.]

9. Memorandum